EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: October 9, 2025

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Roberto C. Cortez, Manager of Water Operations SGH *for RCC*

SUBJECT: Follow-up Water Quality Program

SUMMARY

In response to a request from the Planning Committee at its September 9, 2025 meeting, this memorandum provides additional information on how the District's internal water quality goals compare to other published standards such as California's Public Health Goals.

DISCUSSION

Federal and State Regulations

The District is required to comply with regulations developed by both the United States Environmental Protection Agency (USEPA) and the California State Water Resources Control Board (State Board). More than 100 substances are regulated in drinking water. In most cases, water systems are required to collect and analyze samples, and there is a maximum allowable concentration for the contaminant known as a Maximum Contaminant Level, or MCL. In some cases, it is not possible to determine the concentration of a contaminant, or for various reasons development of an MCL is not feasible. In such cases, the regulatory agencies may develop a Treatment Technique regulation that, when met, assures that the contaminant of concern is addressed. In other cases, enforceable regulations have not been developed, but the State Board is concerned about a particular contaminant and has developed Notification Levels (NL) and Response Levels. In addition, USEPA has developed Health Advisories (HA) for certain contaminants that do not have MCLs.

Development of these various numerical levels is complex. The regulatory agencies assess all available scientific data regarding the potential human health risk associated with the compound. There is generally not sufficient data available on exposure in humans, so data from animal studies or sometimes single-cell organism studies are used. Depending on the strength of the evidence, various safety factors and assumptions are applied. Both the federal and state agencies develop a starting point, a level at which there is basically no human health risk; Maximum Contaminant Level Goals (MCLGs) are developed at the federal level, and Public Health Goals (PHGs) are developed at the state level. Because there is a great deal of uncertainty in

extrapolating from one type of exposure to another, from one species to another, or from high concentration to low concentration, various policy guidelines are applied by teams of toxicologists, epidemiologists, and other scientists developing these goals.

For example, for pathogens with acute health risks in people (e.g., parasites, bacteria) and potentially carcinogenic chemicals (e.g., arsenic, lead), USEPA sets an MCLG at zero. In contrast, for chronic exposure to potentially cancer-causing chemicals, the state establishes a PHG at the "one-in-one million" risk level. At that level, not more than one person in a population of one million people drinking the water daily for 70 years would be expected to develop cancer as a result of exposure to that chemical. Because of these policy differences, the MCLG and PHG for the same contaminant may be different. Once the MCLG and/or PHG is established, the regulatory agency sets the enforceable MCL as close to the goal as possible, taking into account technical issues such as laboratory analytical capabilities, available treatment technologies, the costs of treatment, and methods to assess compliance. Also, many MCLGs and PHGs are lower than the lowest level that can be detected in water.

Internal Water Quality Goals

The District has developed its internal water quality goals over many years and adjusts them as new information becomes available. The internal goals are set to ensure continuous compliance with all regulatory requirements and to better protect public health. There are water quality goals for all regulated compounds, as well as for some compounds that may be regulated in the future or are of concern to the District.

Many water quality goals are set at half of the MCL. Others, such as the goal for total coliform bacteria, are significantly lower than the regulatory standard (ten times lower) due to the acute health risk associated with this contaminant. When no MCL is available, but an NL or HA is available, the internal goal is set at the NL or HA. MCLGs and PHGs are not used in the development of the District's goals because these are not designed as practical treatment levels.

In some cases, industry best practices are used. Such is the case for the maintenance of a chlorine residual in the distribution system. The District is required to maintain a "detectable" residual (0.05 mg/L) in 95% of samples collected from water mains throughout the distribution system. District data, as well as industry guidelines such as the Partnership for Safe Water, demonstrate that we can and should achieve a higher level of public health protection. Furthermore, studies show that higher chlorine residuals are associated with lower incidence of waterborne diseases such as legionella. Therefore, the District's internal water quality goal is to maintain at least ten times the detectable amount of chlorine (0.5 mg/L) in 95% of samples collected from both water mains and in distribution reservoirs. Similarly, the District has a goal for the turbidity level of the filtered water at the water treatment plants that is three times lower than the regulatory standards. This is because studies have shown that lower levels of turbidity are associated with lower concentrations of pathogens.

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